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L9: Entry 41 of 41

File: DWPI

Aug 15, 1997

DERWENT-ACC-NO: 1997-463737

DERWENT-WEEK: 199743

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TITLE: Growth of thin film of single crystal of nitride
semiconductor and its equipment

PATENT-ASSIGNEE: KYOCERA CORP (KYOC)

PRIORITY-DATA: 1996JP-0014533 (January 30, 1996)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 09213998 A	August 15, 1997		008	H01L033/00

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
JP09213998A	January 30, 1996	1996JP-0014533	

INT-CL (IPC): C30 B 29/38; C30 B 35/00; H01 L 21/205; H01 L 33/00

ABSTRACTED-PUB-NO: JP09213998A

BASIC-ABSTRACT:

Periodic group III element material gas, and a nitrogen-containing periodic group V element material gas are supplied in a crystal growth chamber. The thin film of the single crystal of a nitride semiconductor is grown on a heated substrate in the crystal growth chamber. Where, the thin film is grown by controlling atmospheric pressure on the surface of the substrate to the range from about 10 Torr to several atmospheric pressures and by passing a gas consisting mainly of nitrogen and having a pressure of the atmospheric pressure or more through a discharge region and by supplying the gas on the substrate.

Also claimed is that the equipment has: (a) a device for supplying the periodic group III element material gas; (b) a device for supplying the nitrogen-contg. periodic group V element material gas; (c) a device for heating the substrate in the crystal growth chamber; (d) a device for controlling the atmospheric pressure on the surface of the substrate to the range from about 10 Torr to several atmospheric pressures; and (e) the discharge region for passing the gas consisting mainly of nitrogen and having a pressure of the atmospheric pressure or more and for supplying the gas on

the substrate.

USE - The method and the equipment are used in growing the thin film of the single crystal of a periodic gp. III nitride semiconductor. and find their applications in green, blue, ultraviolet light emitting diodes, or laser diodes, devices using InGaN.

ADVANTAGE - The method and the equipment lower the growth temperature of the thin film of the single crystal, promote the growth of the thin film of the single crystal, and elevate dissociation depressing equilibrium vapour pressure against materials having high dissociation pressure, including an InGaN mixed crystal. The result expands the range of substrate selection. The substrate uses no expensive materials having restricted supply, including SiC. The thin film of the single crystal having good quality is formed even if the supply amount of NH3 gas is reduced.

ABSTRACTED-PUB-NO: JP09213998A
EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.1/4

DERWENT-CLASS: L03 U11 U12
CPI-CODES: L04-A02; L04-C01B;
EPI-CODES: U11-C01B; U11-C01J3A; U12-A01A1A; U12-A01A2;

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L9: Entry 40 of 41

File: DWPI

May 9, 2000

DERWENT-ACC-NO: 1999-020474

DERWENT-WEEK: 200030

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TITLE: Semiconductor light emitting device manufacturing method - involves forming specific clad layer during which temperature condition and pressure are changed suitably

INVENTOR: HATAKOSHI, G; ONOMURA, M ; RENNIE, J

PATENT-ASSIGNEE: TOSHIBA KK (TOKE)

PRIORITY-DATA: 1997JP-0027749 (February 12, 1997)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 6060335 A	May 9, 2000		000	H01L021/00
JP 10290027 A	October 27, 1998		015	H01L033/00

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US 6060335A	February 9, 1998	1998US-0020900	
JP 10290027A	February 2, 1998	1998JP-0020907	

INT-CL (IPC): H01 L 21/00; H01 L 21/205; H01 L 33/00; H01 S 3/18

ABSTRACTED-PUB-NO: JP 10290027A

BASIC-ABSTRACT:

The method involves forming a multilayered structure which includes p-AlGa_N clad layer, an InAlGa_N or InGa_N buffer layer, and a waveguide layer. The temperature and pressure during the growth of the clad layer is raised suitably. The density of carrier gas and NH₃ gas that are flowing during the growth of the clad layer is increased.

USE - For use as saturatable absorber.

ADVANTAGE - Reduces threshold current. Controls defective density. Forms superior current construction structure. Reduces noise in light source of optical pick-up.

ABSTRACTED-PUB-NO: US 6060335A

EQUIVALENT-ABSTRACTS:

The method involves forming a multilayered structure which includes p-AlGa_N clad layer, an InAlGa_N or InGa_N buffer layer, and a waveguide layer. The temperature and pressure during the growth of the clad layer is raised suitably. The density of carrier gas and NH₃ gas that are flowing during the growth of the clad layer is increased.

USE - For use as saturatable absorber.

ADVANTAGE - Reduces threshold current. Controls defective density. Forms superior current construction structure. Reduces noise in light source of optical pick-up.

CHOSEN-DRAWING: Dwg.1/21

DERWENT-CLASS: L03 U11 U12 V07 V08

CPI-CODES: L04-A02; L04-C01B; L04-E03;

EPI-CODES: U11-C01J3A; U12-A01B1A; U12-A01B1B; V07-F01A5; V08-A01A; V08-A04A;